

Patent claims:

1.           A connector arrangement for connecting optical fibers, particularly for establishing multimedia  
5   connections in a motor vehicle, comprising:  
a connector (120) with a connector housing (122) which has a front mating-connector receptacle (180) for mating connection with a mating connector and a rear fiber receptacle (126),  
10 a first fiber section (34) which has a first end (64) which is enclosed by a first sleeve (4), the first sleeve (4) being connected permanently and fixedly to the first fiber section (34),  
at least one further second fiber section (36) which has a  
15 first end (66) which is enclosed by a second sleeve (6), the second sleeve (6) being permanently and fixedly connected to the second fiber section (36),  
              wherein the fiber receptacle (126) is constructed for inserting the first ends of the first and  
20 second fiber sections (34, 36),  
              wherein the first and second sleeve (4, 6) form a common fiber holder (2) for the first and second fiber section (34, 36) and wherein the common fiber holder (2) is constructed as an integral unit and can be inserted into  
25 the fiber receptacle (126) of the connector housing (122).
2.           The connector arrangement as claimed in claim 1, wherein the connector housing (122) comprises a first and second cylindrical guide (135, 137) and the fiber  
30 receptacle (126) has at least one first and second channel (134, 136) which are defined by the first and second cylindrical guide (135, 137), respectively, and wherein the

first and second sleeve (4, 6) can be inserted into the first and second channel (134, 136), respectively.

3. The connector arrangement of claim 1, further  
5 including a spring (160) for applying a force to the fiber holder (2) essentially in the direction of insertion (E) of the fiber holder (2) so that a pretension of the fiber sections (34, 36) against the connector housing (122) is created.

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4. The connector arrangement of claim 1, wherein the fiber holder (2) has a connecting section (8) that is arranged between the first and second sleeve (34, 36) and by means of which the first and second sleeve (34, 36) are  
15 integrally connected to one another.

5. The connector arrangement of claim 2 wherein the spring (160) is a single spring that generates the pretension jointly for both fiber sections (34, 36).

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6. The connector arrangement of claim 2 wherein the spring (160) can be attached directly to the connector housing (122).

25 7. The connector arrangement of claim 2 wherein the spring is constructed as a leaf spring (160).

8. The connector arrangement of claim 2 wherein the connector housing (122) has holding channels (174, 176)  
30 into which the leaf spring (160) can be inserted.

9. The connector arrangement of claim 2 wherein the leaf spring (160) comprises two holding sections (164,

166) and an elastic spring arm (162) arranged between these, wherein the holding sections can be inserted into the grooves (174, 176) and the spring arm engages a connecting section of the fiber holder (2) in an assembled  
5 state in order to create the pretension.

10. The connector arrangement of claim 1 wherein the fiber holder (2) has a collar-like guide element (10) which can be inserted into the fiber receptacle (126) of  
10 the connector housing (122).

11. The connector arrangement of claim 1 wherein the collar-like guide element (120) is constructed transversely asymmetrically.  
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12. The connector arrangement of claim 10 wherein the collar-like guide element (10) is transversely constructed smaller than the fiber receptacle (2) at least in as much as there is lateral play (188) which is  
20 adequately dimensioned for enabling a tilting movement of the fiber holder (2) in the connector housing (122).

13. The connector arrangement of claim 10 wherein the collar-like guide element (10) is smaller by 50  $\mu\text{m}$  to  
25 1 mm than the fiber receptacle (126) at the corresponding position.

14. The connector arrangement of claim 10 wherein the fiber holder (2) has stop sections (14, 16) that are  
30 arranged in front of the collar-like guide element (10) in the direction of insertion (E) of the fiber holder (2) into the connector housing (122).

15.           The connector arrangement of claim 14 wherein the fiber holder (2) in each case comprises a stop section (14, 16) at each sleeve (4, 6), the stop sections (14, 16) being transversely separated.

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16.           The connector arrangement of claim 14 wherein the stop sections (14, 16) are asymmetrically constructed.

17.           The connector arrangement of claim 14 wherein  
10 the stop sections (14, 16) are constructed transversely smaller than the collar-like guide element (10).

18.           The connector arrangement of claim 1 wherein  
the first and second sleeve (4, 6) have a first and second  
15 guide section (24, 26) and a first and second intermediate section (194, 196), the intermediate sections being arranged behind the respective guide section (24, 26) in the direction of insertion (E) of the fiber holder (2) and the intermediate sections having a smaller diameter than  
20 the guide sections.

19.           The connector arrangement of claim 1 wherein the connector (120) is a hybrid connector that comprises electrical connections (142, 144, 146, 148) for  
25 establishing electrical connections.

20.           The connector arrangement of claim 1 wherein the at least two electro-optical converters are comprised which are arranged spatially separate from the connector  
30 housing (122) in each case at a second end (94, 96) of the fiber sections (34, 36) opposite to the first end (64, 66), in such a manner that an optical connection is established

between the electro-optical converters and the first ends of the associated fiber sections.

21.           The fiber holder (2) of claim 1 wherein the  
5   first and second sleeve (4, 6) are constructed integrally with one another in order to jointly form the permanently and fixedly connected fiber holder for the two fiber sections (34, 36), the fiber holder (2) being constructed as a one-part unit and being arranged in such a manner that  
10 it can be inserted into the rear fiber receptacle (126) of the connector housing (122).

22.           The connector (120) of claim 1 wherein the connector housing (122) has a front mating-connector  
15 receptacle (180) for the paired connection with a mating connector and a rear fiber receptacle (126), wherein the mating-connector receptacle (180) is constructed as an opening in the front (182) of the connector housing (122), into which opening the mating  
20 connector can be introduced, wherein the fiber receptacle (126) is formed by a common hollow space (128) and two channels (134, 136), and is thus arranged for introducing the fiber holder (2) which is constructed jointly and integrally for both fiber sections  
25 (34, 36), and wherein the two channels (134, 136) are formed by essentially cylindrical guides (135, 137) which protrude into the opening of the mating-connector receptacle (180).